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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,274	01/07/2004	Jagannathan Shiva Shankar	50325-0826	6604
29989 7590 01/03/2008 HICKMAN PALERMO TRUONG & BECKER, LLP 2055 GATEWAY PLACE SUITE 550 SAN JOSE, CA 95110				
EXAMINER KING, JAMAL J				
ART UNIT 4141		PAPER NUMBER		
MAIL DATE 01/03/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/753,274

Applicant(s)

SHANKAR ET AL.

Examiner

Jamal J. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/07/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 11/15/2004.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-52 are pending

Drawings

2. In the Specification on page 11, paragraph [0032] line 7 mentions the element 102 in reference to workstation. This particular element is not shown in any of the given drawings.

In the drawing descriptions, figures 1 and 4 recite that the embodiments of the invention may be implemented. Therefore, figures 1 and 4 should be labeled as prior art.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Specification

3. In the Specification on page 9, paragraph [0027] line 3 mentions the element 104 as workstation, and is shown in figure 1. Page 11, paragraph [0032] line 7 mentions the element 102 as workstation which is not shown in the drawing

Appropriate correction is required.

Claim Objection

4. Claims **45, 46 and 50** are objected to under 37 CFR 1.75 as being a substantial duplicate of claims **42, 43 and 48**. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1, 4, 18, 21, 24, 41 and 44** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims recite “TCP” and/or “IP”. All terms must be spelled out in order to present a clear and concise understanding.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-52 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Although claims 1 and 24 are method claims, they recite the limitation "determining the source of audio degradation..." which is an abstract idea. Claims 1 and 24 also recite, "computing audio degradation that occurred between the origination device and the switching device by comparing the reference version of the audio waveform...." and "determining the source of audio degradation in a path between the first endpoint and second endpoint...." which does not produce any tangible and concrete result. Therefore, claims 1 and 24 are rejected as non-statutory. Claims 2-17 are dependent upon claim 1, and claims 22-40 are dependent upon claim 24. Therefore, the dependent claims are rejected accordingly.

Although claims 18 and 41 are method claims they recite the limitation "determining the audio degradation in a path..." which is an abstract idea. Claims 18 and 41 also recite, "computing audio degradation that occurred in path between the originating device and the network switching device by comparing the reference version with the second version" which does not produce any tangible and concrete result. Therefore, claims 18 and 24 are rejected as non-statutory. Claims 19-23 are dependent upon claim 18, and claims 25-40 are dependent upon claim 24. Therefore, the dependent claims are rejected accordingly.

Claim 47 recites, "A system for determining the source of audio degradation..." which is an abstract idea. Claim 47 also recites, "means for transmitting a reference version of an audio waveform from an originating device...", "means for receiving a second version of the audio waveform..", "means for computing audio degradation..." and

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“means for determining the source of audio degradation in a path...” The body of the claim does not mention any hardware or processor to execute the result or output. Claim 48 is dependent upon claim 47, and therefore is rejected accordingly.

Claim 49 recites, “A system for determining audio degradation in a path...” which is an abstract idea. Claim 49 also recites, “means for receiving from an originating device, at a network switching device, a reference version of an audio waveform” and “means for transmitting to the originating device a second version of the audio waveform that represents the audio waveform after transmission...” The body of the claim does not mention any hardware or processor to execute the result or output. Claim 50 is dependent upon claim 49, and therefore is rejected accordingly.

Claims 24, 41, 51 and 52 recite “_ [computer-readable medium] _”. The Specification on page 19, paragraph [0054] lines 16 and 17, states that transmission media can be acoustic or light waves, radio- waves and infra-red data communications. The Specification on page 19, paragraph [0055] line 22, states the medium can be in the form of a carrier wave and page 20, paragraph [0056] lines 5 and 6, states that a modem uses an infra-red transmitter to change data into infra-red signals. As such, the instant claims are drawn to forms of energy per se, and are considered as being non-statutory. Claims 25-40 are dependent upon 24, and claims 42-46 are dependent upon claim 41. Therefore, the dependent claims are rejected accordingly.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 6-14, 16-20, 22-27, 29-37, 39-43 and 45-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Keane et al. (US Patent Publication No. 2002/0193999 A1).

As per claim 1, Keane et al. discloses:

A method for determining the source of audio degradation in an IP telephony environment, the method comprising the computer-implemented steps of: (page 2 [0018] lines 6-9); where “speech quality” is “audio degradation” as claimed and “packet-based communications network” is “IP telephony environment” as claimed.

-for each switching device of a set of switching devices that are configured on a network between a first endpoint and a second endpoint (Figure 2); where “Communications network node A” is “first endpoint” as claimed and “Communications network node B” is “second endpoint” as claimed.

-transmitting, from an originating device to the switching device, a reference version of an audio waveform (Abstract); where “test voice signals” is “reference version of an audio waveform” as claimed and (page 5 [0073] lines 5-8).

-receiving a second version of the audio waveform that represents the waveform after transmission at least to the switching device (page 2 [0022] lines 25-33); where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed.

-computing audio degradation that occurred between the origination device and the switching device by comparing the reference version of the audio waveform

with the second version of the audio waveform (page 2 [0021] and page 3 [0047]).

-determining the source of audio degradation in a path between the first endpoint and second endpoint based on the audio degradations associated with each of the switching devices of the set of switching devices (page 2 [0022] and page 3 [0047]).

As per claim 2, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the step of computing audio degradation includes user computing audio degradation with a perceptual measure (page 3 [0031]; where “PESQ algorithm” is “perceptual measure” as claimed.

As per claim 3, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the step of computing audio degradation includes computing audio degradation using Perceptual Evaluation of Speech Quality (PESQ) techniques (Abstract lines 1-3, page 3 [0031] lines 47 & 48 and page 5 [0075] lines 51-53).

As per claim 4, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the step of receiving includes receiving the second version of the audio waveform at the origination device from the switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”, performed speech quality

algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

As per claim 6, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the step of receiving includes receiving the second version of the audio waveform at the originating device from the switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform” as claimed, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

-the step of computing the audio degradation consists of computing the audio degradation that occurred in a round-trip path between the originating device and the switching device (page 2 [0018] line 11-[0021]).

As per claim 7, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the step of receiving includes receiving the second version of the audio waveform at the switching device (page 5 [0073] lines 5-8) and (page 5 [0075] lines 42-47).

-the step of computing includes computing the audio degradation at the switching device (page 2 [0021] and page 3 [0047]).

As per claim 8, the rejection of claims 1 and 7 are incorporated and further Keane et al. discloses:

-for each switching device of a set of switching devices, receiving from the switching device a measure of the audio degradation that was computed at the switching device (page 2 [0021]) and (page 5 [0075]); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform” as claimed, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

As per claim 9, the rejection of claim 1 is incorporated and further Keane et al.

discloses:

-determining the set of network switching devices that are configure on the network between the first endpoint and the second endpoint (page 4 [0068] lines 9-12); where “communications network nodes” are the “switching devices” as claimed and (page 4 [0068] lines 16-19); where “user terminal 10” and “user terminal 12” are “first endpoint” and “second endpoint” as claimed.

As per claim 10, the rejection of claim 1 is incorporated and further Keane et al.

discloses:

-determining the set of network switching devices that are configured on the network between the first endpoint and the second endpoint by determining a set of network switching devices that are in a path from the first endpoint to the second endpoint (page 4 [0070] lines 32-35).

As per claim 11, the rejection of claims 1 and 10 are incorporated and further Keane et

al. discloses:

-determining the set of network switching devices that are configured on the network between the first endpoint and the second endpoint by determining a set of network switching devices that are configured in a path from the second endpoint to the first endpoint (page 2 [0022] and page 3 [0047]).

As per claim 12, the rejection of claims 1, 10 and 11 are incorporated and further Keane et al. discloses:

-the path from the first endpoint to the second endpoint is different that the path from the second endpoint to the first endpoint (page 5 [0073] lines 8-13 and [0074] lines 20-24).

As per claim 13, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the set of switching devices comprises every switching device configured on a path between the first endpoint and the second endpoint (page 5 [0073] lines 8-13).

As per claim 14, the rejection of claim 1 is incorporated and further Keane et al. discloses:

-the set of switching devices comprises a subset of the switching devices configured on a path between the first endpoint and the second endpoint (page 5 [0073] lines 8-13); where “nodes D, E, F and G” are “a subset of switching devices” as claimed.

As per claim 16, the rejection of claim 1 is incorporated and further Keane et al. discloses:

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-the steps are performed by one or more network switching devices (page 2 [0026] lines 64-65).

As per claim 17, the rejection of claims 1 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more network routers (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network routers” as claimed.

As per claim 18, Keane et al. discloses:

-A method for determining audio degradation in a path of an IP telephony environment, the method comprising the computer-implemented steps of: (page 2 [0018] lines 6-9); where “speech quality” is “audio degradation” as claimed and “packet-based communications network” is “IP telephony environment” as claimed.

-receiving from an originating device, at a network switching device, a reference version of the audio waveform (page 2 [0022] lines 25-33); where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed and (page 5 [0075] lines 42-44).

-transmitting, to the originating device a second version of an audio waveform that represents the audio waveform after transmission at least to the network switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”,

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performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

-for computing audio degradation that occurred in a path between the originating device and the network switching device by comparing the reference version with the second version (page 2 [0021] and page 3 [0047]).

As per claim 19, the rejection of claim 18 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more network switching devices (page 2 [0026] lines 64 -65).

As per claim 20, the rejection of claim 18 is incorporated and further Keane et al. discloses:

-the steps are performed by a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network router” as claimed.

As per claim 22, the rejection of claims 18 and 21 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more network switching devices (page 2 [0026] lines 64 -65).

As per claim 23, the rejection of claims 18 and 21 is incorporated and further Keane et al. discloses:

-the steps are performed by a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network router” as claimed.

As per claim 24, Keane et al. discloses:

-A computer-readable medium carrying one or more sequences of instructions for determining the source of audio degradation in an IP telephony environment (page 4 [0052] and [0057]), which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

-for each switching device of a set of switching devices that are configured on a network between a first endpoint and a second endpoint (Abstract); where "test voice signals" is "reference version of an audio waveform" as claimed and (page 5 [0073] lines 5-8).

-transmitting, from an originating device to the switching device, a reference version of an audio waveform (page 4 [0053]-[0055] & [0058]-[0060]) and (page 5 [0073] lines 5-8).

-receiving a second version of the audio waveform that represents the waveform after transmission at least to the switching device (page 2 [0022] lines 25-33); where "test vector" is "audio waveform" as claimed and "second node" is "switching device" as claimed.

-computing audio degradation that occurred between the origination device and the switching device by comparing the reference version of the audio waveform with the second version of the audio waveform (page 2 [0021], [0022] and page 3 [0047]).

-determining the source of audio degradation in a path between the first endpoint and second endpoint based on the audio degradations associated with

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each of the switching devices of the set of switching devices (page 2 [0022] and page 3 [0047]).

As per claim 25, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-the step of computing audio degradation by computing audio degradation with a perceptual measure (page 3 [0042]).

As per claim 26, the rejection of claim 24 is incorporated and further Keane et al. discloses:

- the step of computing audio degradation includes computing audio degradation using Perceptual Evaluation of Speech Quality (PESQ) techniques (Abstract lines 1-3, page 3 [0031] lines 47 & 48 and page 5 [0075] lines 51-53).

As per claim 27, the rejection of claim 24 is incorporated and further Keane et al. discloses:

- the step of receiving includes receiving the second version of the audio waveform at the originating device from the switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

As per claim 29, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-the step of receiving by receiving the second version of the audio waveform at the origination device from the switching device (page 5 [0075] lines 57-65);

where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

- the step of computing the audio degradation by computing the audio degradation that occurred in a round-trip path between the originating device and the switching device (page 2 [0018] line 11–[0021] and page 5 [0075])

As per claim 30, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-the step of computing by computing the audio degradation at the switching device (page 5 [0075] lines 44-65).

As per claim 31, the rejection of claim 24 and 30 are incorporated and further Keane et al. discloses:

-for each switching device of a set of switching devices, receiving from the switching device a measure of the audio degradation that was computed at the switching device (page 2 [0021] and page 5 [0075] lines 44-65).

As per claim 32, the rejection of claim 24 is incorporated and further Keane et al. discloses:

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-determining the set of network switching devices that are configured on the network between the first endpoint and the second endpoint (page 4 [0070] lines 32-35).

As per claim 33, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-determining the set of network switching devices that are configured on the network between the first endpoint and the second endpoint by determining a set of network switching devices that are in a path from the first endpoint to the second endpoint (page 4 [0070] lines 32-35).

As per claim 34, the rejection of claims 24 and 33 are incorporated and further Keane et al. discloses:

-determining the set of network switching devices that are configured on the network between the first endpoint and the second endpoint by determining a set of network switching devices that are configured in a path from the second endpoint to the first endpoint (page 2 [0022] and page 3 [0047]).

As per claim 35, the rejection of claims 24, 33 and 34 are incorporated and further Keane et al. discloses:

-the path from the first endpoint to the second endpoint is different that the path from the second endpoint to the first endpoint (page 5 [0073] lines 8-13 and [0074] lines 20-24).

As per claim 36, the rejection of claim 24 is incorporated and further Keane et al. discloses:

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-the set of switching devices comprises every switching device configured on a path between the first endpoint and the second endpoint (page 5 [0073] lines 8-13).

As per claim 37, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-the set of switching devices comprises a subset of the switching devices configured on a path between the first endpoint and the second endpoint (page 5 [0073] lines 8-13); where “nodes D, E, F and G” are “a subset of switching devices” as claimed.

As per claim 39, the rejection of claim 24 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more network switching devices (page 2 [0026] lines 64-65).

As per claim 40, the rejection of claims 24 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more network routers (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network routers” as claimed.

As per claim 41, Keane et al. discloses:

-A computer-readable medium carrying one or more sequences of instructions for determining audio degradation in an IP telephony environment (page 4 [0052] and

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[0057]), *which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:*

-receiving from an originating device, at a network switching device, a reference version of the audio waveform (page 2 [0022] lines 25-33); where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed and (page 5 [0075] lines 42-44).

-transmitting, to the originating device a second version of an audio waveform that represents the audio waveform after transmission at least to the network switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

- for computing audio degradation that occurred in a path between the originating device and the network switching device by comparing the reference version with the second (page 2 [0021], page 3 [0047] and page 4 [0060]).

As per claim 42, the rejection of claim 41 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more processors configured on an intermediate network switching devices (page 2 [0026] lines 64-65).

As per claim 43, the rejection of claims 41 is incorporated and further Keane et al. discloses:

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-the steps are performed by one or more processors on a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network routers” as claimed.

As per claim 45, the rejection of claim 41 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more processors configured on an intermediate network switching devices (page 2 [0026] lines 64-65).

As per claim 46, the rejection of claims 41 is incorporated and further Keane et al. discloses:

-the steps are performed by one or more processors on a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network routers” as claimed.

As per claim 47, Keane et al. discloses:

A system for determining the source of audio degradation in an IP telephony environment, the method comprising: (page 2 [0018] lines 6-9); where “speech quality” is “audio degradation” as claimed and “packet-based communications network” is “IP telephony environment” as claimed.

means for transmitting a reference version of an audio waveform from an originating device to each switching device of a set of switching devices (page 5 [0073] lines 5-8) *that are configured on a network between a first endpoint and*

a second endpoint (Abstract); where “test voice signals” is “reference version of an audio waveform” as claimed and (page 5 [0073] lines 5-8).

- means for receiving a second version of the audio waveform that represents the waveform after transmission at least to each respective switching device of the set of switching devices (page 2 [0022] lines 25-33); where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed.

-means for computing audio degradation that occurred between the originating device and the switching device by comparing the reference version of the audio waveform with the second version of the audio waveform (page 2 [0021], [0022] and page 3 [0047]).

-means for determining the source of audio degradation in a path between the first endpoint and second endpoint based on the audio degradations associated with each of the switching devices of the set of switching devices (page 2 [0022] and page 3 [0047]).

As per claim 48, the rejection of claim 47 is incorporated and further Keane et al. discloses:

-the system is configured on a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network router” as claimed.

As per claim 49, Keane et al. discloses:

-A system for determining audio degradation in a path of an IP telephony environment, the system comprising (page 2 [0018] lines 6-9):

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-means for receiving from an originating device, at a network switching device, a reference version of an audio waveform (page 2 [0022] lines 25-33); where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed and (page 5 [0075] lines 42-44).

-means for transmitting, to the originating device a second version of an audio waveform that represents the audio waveform after transmission at least to the network switching device (page 5 [0075] lines 57-65); where “Once a measure of the speech quality of the particular voice call is obtained this information is provided to the user” explains how the switching device received the “audio waveform”, performed speech quality algorithm and sent the “audio waveform” back to the user, or “originating device” as claimed.

-for computing audio degradation that occurred in a path between the originating device and the network switching device by comparing the reference version with the second (page 2 [0021], page 3 [0047] and page 4 [0060]).

As per claim 50, the rejection of claim 49 is incorporated and further Keane et al. discloses:

-the system is configured on a network router (page 3 [0026] lines 1-4); where “wireless local area network (LAN), global system for mobile communications (GSM) or third generation (3G) networks” are “network router” as claimed.

As per claim 51, Keane et al. discloses:

-A network device that can determine the source of audio degradation in an IP telephony environment, the device comprising (page 3 [0039]):

-a network interface (page 2 [0026] lines 64-65 and page 3 lines 1-4, page 3 [0034] line 9, [0039] line 31, page 4 [0068] line 10).

-a processor coupled to the network interface and receiving messages from a network through the network interface (page 3 [0042]).

-a computer-readable medium comprising one or more stored sequences of instructions which, when executed by the processors, cause the processor to carry out the steps of:

-for each switching device of a set of switching devices that are configured on a network between a first endpoint and a second endpoint (Abstract); where "test voice signals" is "reference version of an audio waveform" as claimed and (page 5 [0073] lines 5-8).

-transmitting, from an originating device to the switching device, a reference version of an audio waveform (page 5 [0073] lines 5-8).

-receiving a second version of the audio waveform that represents the waveform after transmission at least to the switching device (page 2 [0022] lines 25-33);
where "test vector" is "audio waveform" as claimed and "second node" is "switching device" as claimed.

-computing audio degradation that occurred between the origination device and the switching device by comparing the reference version of the audio waveform with the second version of the audio waveform (page 2 [0021] and page 3 [0047]).

-determining the source of audio degradation in a path between the first endpoint and second endpoint based on the audio degradations associated with

each of the switching devices of the set of switching devices (page 2 [0022] and page 3 [0047]).

As per claim 52, Keane et al. discloses:

-A network device that can determine audio degradation in a path of an IP telephony environment, the device comprising (page 2 [0018] lines 6-9); where “speech quality” is “audio degradation” as claimed and “packet-based communications network” is “IP telephony environment” as claimed.

-a network interface (page 2 [0026] lines 64-65 and page 3 lines 1-4, page 3 [0034] line 9, [0039] line 31, page 4 [0068] line 10).

-a processor coupled to the network interface and receiving messages from a network through the network interface (page 3 [0042]).

-a computer-readable medium comprising one or more stored sequences of instructions which, when executed by the processors, cause the processor to carry out the steps of:

-for each switching device of a set of switching devices that are configured on a network between a first endpoint and a second endpoint (Abstract); where “test voice signals” is “reference version of an audio waveform” as claimed and (page 5 [0073] lines 5-8).

-transmitting, from an originating device to the switching device, a reference version of an audio waveform (page 5 [0073] lines 5-8).

-receiving a second version of the audio waveform that represents the waveform after transmission at least to the switching device (page 2 [0022] lines 25-33);

where “test vector” is “audio waveform” as claimed and “second node” is “switching device” as claimed.

-computing audio degradation that occurred between the origination device and the switching device by comparing the reference version of the audio waveform with the second version of the audio waveform (page 2 [0021], [0022] and page 3 [0047]).

-determining the source of audio degradation in a path between the first endpoint and second endpoint based on the audio degradations associated with each of the switching devices of the set of switching devices (page 2 [0022] and page 3 [0047]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5, 21, 28, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane et al, (Keane) (US Pub No. 2002/0193999), and in further in view of Bennett, (US Pub No. 2004/0090921) and Ohlsson, (US Patent No. 6452950).

As per claim 5, the rejection of claim 1 is incorporated and Keane does not disclose:

-receiving includes receiving the second version of the audio waveform over a reliable TCP connection after the switching device timestamps packets that it received that correspond with the reference version that was transmitted by the originating

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device. However, Bennett in an analogous art discloses that switching devices have to timestamp packets once received (Bennett, page 1 [0010] lines 21-24, “An Existing Internet Protocol Measurement Protocol (IPMP) involved having hosts and routers place timestamps in packets as they were forwarded”), explains that the second version of the audio waveform is received over a reliable TCP after the switching devices timestamp packets.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of invention was made to incorporate the teaching of Bennett into the teaching of Keane to have timestamp packets. The modification would be obvious because one of the ordinary skill in the art would understand that in order for an audio waveform to continue with the transmission, the packets would have performed a timestamp process.

As per claim 5, the rejection of claim 1 is incorporated, and neither Keane nor Bennett disclose:

-buffers the packets before sending them to the originating device over a reliable TCP connection. However, Ohlsson in an analogous art discloses the above limitation (Ohlsson, column 4, lines 46-47, “In a further aspect of the invention, there is provided a method of adapting a size of a buffer that stores packets arriving at a receiving node in a packet communication system”), where the buffer is known to buffer packets. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of invention was made to incorporate the teaching of Ohlsson into the teaching of Keane and Bennett to have the packets buffered and sent them back to the originating device. The modification would be obvious because one of the ordinary skill in the art would interpret that buffering occurs in order to sequence packets (Ohlsson, column 4, lines 45-

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48, "In accordance with Applicants' invention, an adaptive jitter buffer stores data packets arriving at a node over the IP network and handles data packets that arrive too late or out of sequence"). . **Claims 21, 28 and 44** have similar limitations as claim 5 and are rejected under the same reason set forth in connection of the rejection in claim 5.

12. Claims 15 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane et al, (Keane) (US Pub No. 2002/0193999), and in further in view of Reynolds, (US Pub No. 2002/0136508).

As per claim 15, the rejection of claim 1 is incorporated and Keane does not disclose:

-that the transmission of the audio waveform is done so in sequential order.

However, Reynolds in an analogous art discloses that the transmission of the audio waveform is done in sequential order (Reynolds, page 7 [0076] lines 16-19, "Even the transmission of these packets is subject to the limitations described in FIG. 1, where the PSTN system transmits the packets in sequence"), shows that the transmission of packets in the audio waveform is done in sequential order.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of invention was made to incorporate the teaching of Reynolds into the teaching of Keane that the transmission of the audio waveform is done so in sequential order. The modification would be obvious because one of the ordinary skill in the art would interpret that packets cannot be transmitted in a network system without preceding packets being transmitted (Reynolds, page 7 [0076] lines 19-20, "implying that packet 10 can not be transmitted unless packets 7, 8 and 9 are transmitted").

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Claim 38 has similar limitations as claim 15 and is rejected under the same reason set forth in connection of the rejection in claim 15.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamal J. King whose telephone number is 571-270-3160. The examiner can normally be reached on Monday - Thursday 7:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das can be reached on 571-272-3696. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jamal King

Patent Examiner

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Date: December 3, 2007

/CHAMEL I C. DAS/

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